

THE AMERICAN SPECIES OF PTEROLOMA (COLEOPTERA-SILPHIDAE) AND A NEW JAPANESE SPECIES.

BY EDWIN C. VAN DYKE,
University of California, Berkeley, California.

The genus *Pteroloma* was established by Gyllenhal¹ in 1827, for the reception of the north European species described by him in 1810 as *Harpalus Forsstroemii*.² In 1859 LeConte³ described as *Necrophilus tenuicornis*, a species from Puget Sound. This was placed in the Crotch Catalogue⁴ in the genus *Agyrtes* Frohl. and later removed by Horn⁵ to its present and proper place in *Pteroloma*. Since this time eleven other species have been described, eight from Asia and three from North America. The Old World species⁶ were all from the high mountains of central Asia and Japan. The species described from America were *Pteroloma sallaei* Matthews,⁷ from Mt. Orizaba, Mexico, and

¹ Ins. Suec., IV (1827) p. 418.

² Ins. Suec., II (1810) p. 111.

³ Proc. Ac. Nat. Sc. Phil. (1859), p. 84.

⁴ Check List of the Col. of Am. North of Mex., by G. R. Crotch, Salem, Mass., 1873.

⁵ Synop. of Sylphidae of the U. S., by G. H. Horn, Tr. Am. Ent. Soc., VIII (1880) p. 245.

⁶ *P. davidis* Fairm., from Mupin, Setschuan, China, Ann. Soc. Ent. Belg., XXXV (1891), C. R., p. cxc1.

P. anglorossicum Sem., from mountains between Pamirs and Cashmere, Horae Soc. Ent. Ross., XXV (1891) p. 297.

P. potanini Sem., from Gan Su, N. W. China, Horae Soc. Ent. Ross., XXVII (1893) p. 336, 338.

P. turkestanicum Sem., from W. Turkestan, Horae Soc. Ent. Ross., XXVII (1893) p. 337, 340.

P. discicollis Lewis, from top of Mt. Nantassan, Japan, Ann. Mag. Nat. Hist., 11 (1893) p. 356.

P. harmandi Portevin, from Darjeeling, Himalayas, Bul. Mu. Hist. Nat., Paris, 9 (1903) p. 334.

P. calathoides Portevin, from near Tokio, Japan, Bul. Mu. Hist. Nat. Paris, 11 (1905) p. 421.

P. rosti Portevin, from Cashmere, Bul. Soc. Ent. Fr., 1907, p. 252, fig.

⁷ Biol. Centr. Amer., Col. II(1) (1888) p. 97, pl. 3, fig. 11.

Pteroloma caraboides Fall,⁸ from Wenatchee on the east side of the Cascade Mountains of Washington and *Pteroloma tahoeca* Fall⁹ from Lake Tahoe, California. The three species described from America with *forsstroemi* for this last is also to be found in Alaska and the mountains of western Canada, give us five described species in the New World. To this list, I will add one more from this country and at the same time make known a third species from Japan.

Pteroloma Gyll. was placed by Horn (1880) in the tribe Silphini chiefly because of the contiguous posterior coxae. It differs, however, markedly from all other members of that tribe by possessing long and slender, slightly clubbed antennae, and by lacking tibial spinules, in these regards resembling *Lyrosoma* Mann., the only genus in Horn's tribe Lyrosomini. Semenow¹⁰ more closely associates *Pteroloma* and *Lyrosoma* and Portevin¹¹ follows him in this regard for he places them both with *Brachyloma* Portevin, an oriental genus closely related to *Pteroloma*, in the tribe Pterolomini. With this arrangement I thoroughly agree for our two genera resemble one another as regards most fundamentals and only differ, *Pteroloma* by having the posterior coxae contiguous (not absolutely so in all specimens) and *Lyrosoma* by having them widely separated. They also have quite similar habits. I have found *Lyrosoma opacum* Mann. feeding on the rotting kelp or seaweed at Unalaska, Alaska, and the various species of *Pteroloma* are generally to be found under rocks or rubbish in damp situations, as a rule along mountain streams, where they no doubt feed upon the decaying vegetation found in such locations.

The following review has been based in the main upon material in my own collection but I have as usual received assistance from my friends. M. Banninger, of Giessen, Germany, sent me typical specimens from Europe of *Pteroloma forsstroemi* (Gyll.) to compare with those from this country. M. H. Hatch, of the University of Washington, furnished numerous bibliographical references and also loaned me some of his specimens. Ralph Hopping,

⁸ Can. Ent., XXXIX (1907) p. 235.

⁹ Can. Ent., LIX (1927), p. 136.

¹⁰ Revisio Specierum ad Silphidarum, genera *Pteroloma* Gyll. et *Lyrosoma* Mann. Spectantium, auctore Andre Semenow, Horae Sc. Ent. Ross., XXVII (1893) p. 335-346.

¹¹ Ann. Soc. Ent. Belg., LVIII (1914) p. 218.

of Vernon, B. C., and M. C. Lane, of Toppenish, Wash., also gave or loaned me material and the California Academy of Sciences, through E. P. Van Duzee, permitted me to study and describe the new Japanese species from the Koebele collection. To all of these I wish to express my thanks.

KEY FOR THE SEPARATION OF THE AMERICAN SPECIES.

- Prothorax distinctly constricted or narrowed posteriorly, much narrower at base than base of elytra, somewhat cordate. . . . 1
 Prothorax but slightly narrowed posteriorly, almost as broad at base as base of elytra, not cordate. 3
 1. Prothorax slightly narrower at base than apex, with deep fovea in front of scutellum as well as near hind angles and with humeral margin of elytra serrate. . . *forsstroemi* (Gyll.)
 Prothorax broader at base than apex, without basal foveae and elytral margin not serrate. 2
 2. Larger species, 6-7 mm. in length, somewhat elliptical in general shape, pronotum minutely alutaceous and rather finely punctured on disk, denser near base. *caraboides* Fall
 Smaller species, 4.5 mm. in length, elongate and subparallel, pronotum smooth and shining, impunctate on disk, rather deeply punctured toward the base. *sallaei* Matth.
 3. Hind angles of prothorax angulate. 4
 Hind angles of prothorax rounded. *tenuicorne* (Lec.)
 4. Pronotum minutely alutaceous and with a few fine punctures at most, chiefly evident at base. *tahoeca* Fall
 Pronotum smooth and shining, rather coarsely punctured, sparse on disk and dense at sides and base.

arizonica sp. nov.

Pteroloma forsstroemi (Gyllenhal). (Plate I, fig. 1.)

This species is the most distinct of any in our fauna, its nebri-like prothorax with pronounced basal foveae and the serrate margined elytra enabling it to be readily separated from the others. In addition it is piceous brown generally with reddish brown margins, smooth and shining; with head rather sparsely, coarsely punctured and with an evident fovea between the eyes; the prothorax with a moderately wide and almost flat margin, a few coarse punctures, most numerous near margins; the scutellum not distinctly punctured; the elytra with a rather broad lateral margin, striae coarsely punctured, a few obscure punctures on the first, third and fifth intervals, the epipleura coarsely punctured; and the mesosternum obscurely punctured. Specimens from this

country which I have carefully compared with typical European specimens are slightly smaller, with the pronotal punctures less numerous and the striae punctures coarser, otherwise not different.

It is found in the boreal parts of Europe, extending through Siberia to Kamchatka, in Alaska, and the mountains of western Canada, my American specimens being from Lake Louise, Alberta, Canada.

Pteroloma caraboides Fall. (Plate I, fig. 2.)

Caraboides is our largest species and much like a typical *Calathus* in general facies. It is more or less alutaceous above and hence somewhat opaque; with the head rather finely, sparsely punctured and with a vague frontal impression; the prothorax gradually narrowed and the sides sinuate behind, the lateral margin narrow, and the upper surface rather finely and evenly though not closely punctured; the scutellum with a few fine punctures; the elytra narrowly margined, the striae deep and finely, closely punctured, the alternate intervals with a few vague punctures; and the episternae and epipleurae not evidently punctured.

This species was described from specimens taken by H. F. Wickham at Wenatchee, E. Washington. Besides a number of Wickham's typical specimens, I have before me material from the following localities: Waha, Idaho (Lane); Spious Creek, B. C. (Hopping), and Devil's Kitchen, Warner Valley, Lassen Nat. For., Calif. (Hopping). I also have specimens from a large series collected by Albert Koebele and labeled Summit, Calif. These, I believe, were in reality secured at Easton, Wash., not far from the type locality, a place where Mr. Koebele collected extensively. Many of his specimens, unfortunately, had the wrong locality labels attached. The locality, Mt. San Antonio, So. Calif., cited by Fall, I also very much doubt. A discontinuous distribution of this kind would be remarkable.

Pteroloma sallaei Matthews.

Judging from the description, this species is much like the preceding but smaller, more parallel, shining and with the pronotum rather deeply punctured toward the base.

The unique was from the Sallé collection and was taken on Mt. Orizaba, Mexico.

Pteroloma tenuicorne (Le Conte). (Plate I, fig. 3.)

This is a species with regard to which there has been much confusion. The type specimen was collected by George Davidson, of

the U. S. Coast and Geodetic Survey, at Puget Sound. I have examined this critically. I also have before me a specimen from the Hood River, Ore., that was carefully compared with this and found to agree in all particulars. These both differ materially from most of the specimens, mainly from the Sierra Nevada mountains, which Horn (1880) had before him when he wrote his revision of the Silphidae. The latter were undoubtedly the species which follows.

The most distinctive feature of the true *tenuicorne* is that it has the hind angles of the prothorax rounded, a character not found in any of our other species. In addition it is of a generally elongate elliptical shape, dark brown or reddish brown in color, usually with lighter margins; the head distinctly but sparsely punctured; the prothorax broadest back of middle, the pronotum flattened laterally, rather coarsely and closely punctured at sides and base, more finely and sparsely on disk; the scutellum with a few fine punctures; the elytra with striae moderately coarsely and closely punctured and with a few indistinct punctures on alternate intervals; and the epipleura coarsely and the meta episternal area sparsely punctured.

This species is known to me from the following places: Puget Sound (type); Mt. Hood and Hood River, Ore. (Van Dyke); Mt. Bonaparte, Okanagon Co., Wash. (Lane); Cedar Mt., Moscow, Ida. (Lane); Mont.; Waha Lake, Ida. (Lane-Hatch coll.); Warner Mts., Modoc Co., Calif. (Hopping), and Butte Creek, Lassen Co., Calif. (Hopping). Specimens in the collection of the late Professor O. B. Johnson, now at the University of Washington, and labeled Gilroy Hot Springs, Calif., were most likely collected in the Puget Sound country.

***Pteroloma taheoca* Fall.** (Plate I, fig. 4.)

Robust, elliptical, reddish brown with margins, antennae and epipleurae lighter, the legs somewhat flavous, the upper surface finely alutaceous and as a result more or less subopaque. Head finely, sparsely punctured and with a vague interocular impression. Prothorax almost twice as broad as long, broadest at middle, anterior margin deeply emarginate with anterior angles prominent and subacute, base transverse and distinctly broader than apex, sides evenly and broadly arcuate from front angles to base, the sides in a few cases slightly sinuate posteriorly, hind angles sharp and slightly obtuse, disk moderately convex, broadly deplanate laterally

and with fine side margins, finely sparsely and irregularly punctured (sometimes almost impunctate). Scutellum with a few, fine, scattered punctures. Elytra fully three times as long as prothorax and one-fourth broader than long, elliptical, attenuated apically, margin simple, not serrate humerally, more shining than head and pronotum, convex, striae distinctly impressed and finely, closely punctured, the intervals slightly convex and the first, third and fifth with an occasional puncture. Beneath with epipleurae smooth and the sternal side pieces without evident punctation. Length 6.5 mm., breadth 3 mm.

This species differs from *tenuicorne* Lec. with which it has generally been confused by being considerably broader; less shining; the prothorax more deeply emarginate in front, more broadly arcuate at sides, with hind angles not rounded, and with disk very finely punctured at most; the elytra more broadly arcuate at sides, the striae not so distinctly defined, the punctures of the alternate intervals hardly evident; and the epipleura smooth and deeply punctured.

This species was described from Lake Tahoe and Tuolumne Meadows, Calif., other localities in California known to me are: Simms Siskiyou Co.; Strawberry Vall., Eldorado Co.; Yosemite Vall.; and Mt. Lyell, all collected by myself; besides Truckee (Hatch coll.); Mt. Sillmann, Mineral King, Grant Forest and other localities in Tulare Co. as well a few from Eldorado Co. in the Hopping collection. It is a fairly common species found along the margins of the alpine streams throughout the Sierra Nevada mountains of California.

Pteroloma arizonica Van Dyke n. sp. (Plate I, fig. 5.)

Robust, elliptical, reddish brown, mesosternum and abdomen darker, upper surface smooth and shining. Head moderately coarsely, sparsely and irregularly punctured and with an evident interocular impression. Prothorax about twice as wide as long, broadest posterior to middle, anterior margin moderately emarginate with anterior angles broad, and rounded at apices, base transverse and distinctly broader than apex, sides evenly but not broadly arcuate from front angles to base, hind angles obtuse, not rounded, disk moderately convex, broadly sulcate laterally and with fine margin, coarsely and closely punctured at base and sides, more finely and sparsely at center. Scutellum with a few fine punctures. Elytra three times as long as prothorax and one-fourth longer

than broad, elliptical, margins simple, not serrate, disk convex, striae finely impressed and closely, finely punctured, intervals flattened, the alternate with a few punctures. Beneath with epipleura coarsely punctured and side pieces of meso- and metathorax very finely punctured. Length 5.5 mm., breadth 3 mm.

Holotype, a unique female in my collection, taken near Prescott, Ariz., February 11, 1907, by J. Aug. Kutsche.

This species somewhat resembles the preceding but as regards its smoothness, shape of prothorax and punctured epipleura and sternites, agrees with *tenuicorne* Lec. The hind angles of the prothorax are, however, distinctly angulated, not rounded and the pronotum has a broad, shallow sulcus laterally.

KEY FOR THE SEPARATION OF THE JAPANESE SPECIES.

Head impunctate, anterior angles of prothorax prominent, reddish brown, length 4 mm. *discicollae* Lewis.

Head punctate, color more or less uniform I

1. Prothorax distinctly narrowed posteriorly, somewhat cordate and with distinctly impressed fovea in front of scutellum, elytral margins serrate in humeral region, length 6.5 mm.

koebelei sp. nov.

Prothorax with sides arcuate to base, hind angles sharp and obtuse, length 6 mm. *calathoides* Portevin.

Pteroloma koebelei Van Dyke n. sp. (Plate I, fig. 6.)

Elongate, dark reddish brown, margins of elytra, antennae and legs rufous, the upper surface smooth and shining. Head very distinctly punctured, more sparsely in front and closer behind and with shallow interocular impression. Prothorax less than twice as broad as long, broadest at middle, anterior margin deeply emarginate, anterior angles subangulate and prominent, base transverse, but little broader than apex but considerably narrower than base of elytra, sides almost straight and broadly diverging from anterior angles, rounded at middle, thence slightly converging and sinuate to base, the hind angles almost right angled, the disc slightly convex with broad, distinctly channeled side margins, coarsely, sparsely and irregularly punctured, and with well defined fovea in front of scutellum and shallow depressions near hind angles. Elytra over three times as long as prothorax and about one-fourth broader than long, elliptical, the side margin distinctly serrate in the humeral region, disk convex, striae well impressed and rather finely, closely punctured, the intervals

slightly convex and with a few distinct punctures on the first, third, fifth and seventh. Beneath with epipleura coarsely punctured and the meso- and metaepisterna and epimeron finely and somewhat obscurely punctured. Length 6.5 mm., breadth 3.25 mm.

Holotype, a unique female in the Koebele collection of the California Academy of Sciences, taken by Albert Koebele at Yumoto, Japan.

This species is without doubt somewhat related to *Pteroloma forstroemi* (Gyll.) having the same cordate type of prothorax with marked basal foveae and serrate margins of elytra, but it differs by having the prothorax broader, less narrowed behind, with the side margins broader and more definitely channeled and the punctuation more abundant. Of the other Japanese species it is perhaps more closely related to *discicolle* Lewis than to *calathoides* Portevin though evidently quite distinct from both.

EXPLANATION OF PLATE I.

- Fig. 1. *Pteroloma forstroemi* (Gyll.).
- Fig. 2. *Pteroloma caraboides* Fall.
- Fig. 3. *Pteroloma tenuicorne* (Lec.).
- Fig. 4. *Pteroloma tahoeca* Fall.
- Fig. 5. *Pteroloma arizonica* sp. nov.
- Fig. 6. *Pteroloma koebelei* sp. nov.